

CLAIMS

That which is claimed is:

1. A fluid system for an article of footwear, the fluid system comprising:
a first chamber having a side portion, a top portion, and a bottom portion;
a second chamber extending at least partially around the side portion of the first chamber,
and the second chamber extending above the top portion of the first chamber;
a fluid path extending between the first chamber and the second chamber to place the first chamber and the second chamber in fluid communication; and
a valve positioned within the fluid path to permit fluid flow from the first chamber to the second chamber and to substantially prevent fluid flow from the second chamber to the first chamber.
2. The fluid system recited in claim 1, wherein the second chamber has a curved configuration that defines an interior area within the curved configuration, the first chamber being positioned within the interior area.
3. The fluid system recited in claim 1, wherein two coextensive sheets of polymer material are bonded together to form the first chamber, the second chamber, and the fluid path.
4. The fluid system recited in claim 3, wherein the valve is positioned between the sheets of polymer material.
5. The fluid system recited in claim 3, wherein the fluid system is formed through a thermoforming process.
6. The fluid system recited in claim 1, wherein the valve is formed from at least one layer of polymer material.
7. The fluid system recited in claim 1, wherein the valve includes an inlet that is biased open with at least one weld bead positioned within the inlet.

8. The fluid system recited in claim 1, wherein another fluid path with a filter assembly extends from an exterior of the fluid system to the first chamber to place the first chamber in fluid communication with the exterior of the footwear.
9. The fluid system recited in claim 8, wherein the filter assembly includes a filter material that permits air to enter the fluid system and restricts liquids and particulates from entering the fluid system.
10. The fluid system recited in claim 9, wherein the filter material includes a polytetrafluoroethylene material.
11. The fluid system recited in claim 1, wherein the fluid path consists of a conduit and the valve.
12. The fluid system recited in claim 1, wherein a fluid inlet for the fluid system is in fluid communication with the first chamber, the fluid inlet being separate from the first chamber.
13. The fluid system recited in claim 1, wherein the second chamber extends below the bottom portion of the first chamber.
14. An article of footwear having an upper and a sole structure, the sole structure comprising:
 - a polymer foam material; and
 - a fluid system at least partially encapsulated within the polymer foam material, the fluid system including:
 - a pump chamber having a side portion, a top portion, and a bottom portion;
 - a pressure chamber extending at least partially around the side portion of the pump chamber, and the pressure chamber extending above the top portion of the pump chamber;
 - a first fluid path extending between the pump chamber and the pressure chamber to place the pump chamber and the pressure chamber in fluid communication,

- a first valve positioned within the first fluid path to permit fluid flow from the pump chamber to the pressure chamber and to limit fluid flow from the pressure chamber to the pump chamber,
- a second fluid path extending from an exterior of the footwear to the pump chamber to place the pump chamber in fluid communication with the exterior of the footwear, and
- a second valve positioned within the second fluid path to permit fluid flow from the exterior to the pump chamber and to limit fluid flow from the pump chamber to the exterior.

15. The article of footwear recited in claim 14, wherein the pressure chamber has a curved configuration that defines an interior area within the curved configuration, the pump chamber being positioned within the interior area.

16. The article of footwear recited in claim 14, wherein two coextensive sheets of polymer material are bonded together to form the pump chamber, the pressure chamber, the first fluid path, and the second fluid path.

17. The article of footwear recited in claim 16, wherein the first valve and the second valve are positioned between the sheets of polymer material.

18. The article of footwear recited in claim 16, wherein the fluid system is formed through a thermoforming process.

19. The article of footwear recited in claim 14, wherein each of the first valve and the second valve is formed from at least one layer of polymer material.

20. The article of footwear recited in claim 14, wherein a filter is positioned in the second fluid path.

21. The article of footwear recited in claim 20, wherein the filter includes a filter material that permits air to enter the fluid system and restricts liquids and particulates from entering the fluid system.
22. The article of footwear recited in claim 14, wherein the pressure chamber extends below the bottom portion of the pump chamber.
23. The article of footwear recited in claim 14, wherein the first fluid path and the second fluid path are conduits.
24. The article of footwear recited in claim 14, wherein the second fluid path consists of a conduit and the second valve.
25. The article of footwear recited in claim 14, wherein a fluid inlet for the fluid system is positioned separate from the pump chamber.
26. A fluid system for an article of footwear, the fluid system comprising:
a first sheet formed of a thermoplastic polymer material;
a second sheet of the thermoplastic material, the first sheet and the second sheet being bonded together to define:
a first chamber,
a second chamber extending around at least a portion of the first chamber, and
a fluid path extending between the first chamber and the second chamber to place the first chamber and the second chamber in fluid communication; and
a valve positioned between the first sheet and the second sheet and within the fluid path to permit fluid flow from the first chamber to the second chamber and to limit fluid flow from the second chamber to the first chamber.
27. The fluid system recited in claim 26, wherein the second chamber has a curved configuration that defines an interior area within the curved configuration, the first chamber being positioned within the interior area.

28. The fluid system recited in claim 26, wherein the first chamber has a side portion, a top portion, and a bottom portion, and the second chamber extends above the top portion and below the bottom portion of the first chamber.
29. The fluid system recited in claim 26, wherein a top portion of the first chamber extends above the second chamber.
30. The fluid system recited in claim 26, wherein the valve is formed from at least one layer of polymer material.
31. The fluid system recited in claim 26, wherein the valve includes an inlet that is biased open with at least one weld bead positioned within the inlet.
32. The fluid system recited in claim 26, wherein another fluid path with a filter assembly extends from an exterior of the fluid system to the first chamber to place the first chamber in fluid communication with the exterior of the footwear.
33. The fluid system recited in claim 32, wherein the filter assembly includes a filter material that permits air to enter the fluid system and restricts liquids and particulates from entering the fluid system.
34. The fluid system recited in claim 33, wherein the filter material includes a polytetrafluoroethylene material.
35. The fluid system recited in claim 26, wherein the fluid system is formed through a thermoforming process.
36. The fluid system recited in claim 26, wherein the fluid path consists of a conduit and the valve.

37. The fluid system recited in claim 26, wherein a fluid inlet for the fluid system is in fluid communication with the first chamber, the fluid inlet being separate from the first chamber.
38. An article of footwear having an upper and a sole structure, the sole structure comprising:
a polymer foam material; and
a fluid system at least partially encapsulated within the polymer foam material, the fluid system including:
a first chamber;
a second chamber extending at least partially around a side portion of the first chamber;
a fluid path extending between the first chamber and the second chamber to place the first chamber and the second chamber in fluid communication;
a valve positioned within the fluid path to permit fluid flow from the first chamber to the second chamber and to substantially prevent fluid flow from the second chamber to the first chamber; and
a fluid inlet for the fluid system that is in fluid communication with the first chamber, the fluid inlet being separate from the first chamber.
39. The article of footwear recited in claim 38, wherein the second chamber has a curved configuration that defines an interior area within the curved configuration, the first chamber being positioned within the interior area.
40. The article of footwear recited in claim 38, wherein two coextensive sheets of polymer material are bonded together to form the first chamber, the second chamber, and the fluid path.
41. The article of footwear recited in claim 40, wherein the valve is positioned between the sheets of polymer material.
42. The article of footwear recited in claim 40, wherein the fluid system is formed through a thermoforming process.

43. The article of footwear recited in claim 38, wherein the valve is formed from at least one layer of polymer material.
44. The article of footwear recited in claim 38, wherein the fluid path consists of a conduit and the valve.
45. The article of footwear recited in claim 38, wherein a fluid inlet for the fluid system is in fluid communication with the first chamber, the fluid inlet being separate from the first chamber.
46. The article of footwear recited in claim 38, wherein the first chamber has a side portion, a top portion, and a bottom portion, and the second chamber extends above the top portion and below the bottom portion of the first chamber.
47. The article of footwear recited in claim 38, wherein a top portion of the first chamber extends above the second chamber.
48. A fluid system for an article of footwear, the fluid system comprising:
a pump chamber;
a pressure chamber extending at least partially around a side portion of the pump chamber;
a fluid path extending between the pump chamber and the pressure chamber to place the pump chamber and the pressure chamber in fluid communication, the fluid path consisting of a conduit and a valve positioned within the conduit, the valve permitting fluid flow from the pump chamber to the pressure chamber and substantially preventing fluid flow from the pressure chamber to the pump chamber.
49. The fluid system recited in claim 48, wherein the pressure chamber has a curved configuration that defines an interior area within the curved configuration, the pump chamber being positioned within the interior area.

50. The fluid system recited in claim 48, wherein two coextensive sheets of polymer material are bonded together to form the pump chamber, the pressure chamber, and the fluid path.
51. The fluid system recited in claim 50, wherein the valve is positioned between the sheets of polymer material.
52. The fluid system recited in claim 48, wherein another fluid path with a filter assembly extends from an exterior of the fluid system to the pump chamber to place the pump chamber in fluid communication with the exterior of the footwear.
53. The fluid system recited in claim 48, wherein a fluid inlet for the fluid system is in fluid communication with the pump chamber, the fluid inlet being separate from the pump chamber.